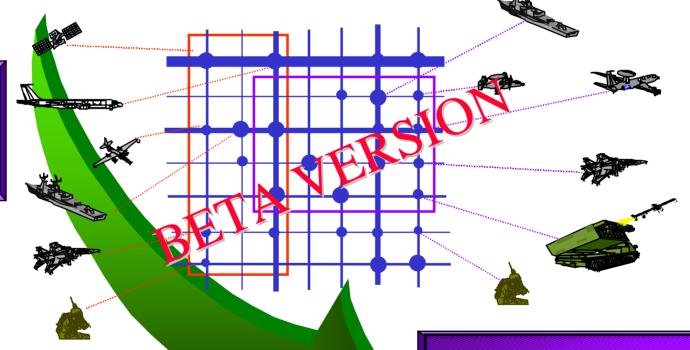


THE EMERGING JOINT STRATEGY FOR

INFORMATION SUPERIORITY

A Pathway to the Future



COL Owen D. Ryan J6Q Mr. John J. Garstka J6Q Implementing Joint Vision 2010

Briefing Purpose



• Present an Information Briefing on the Emerging Joint Strategy for Information Superiority and its relationship to Network Centric Warfare

Briefing Agenda

- Joint Vision 2010
- Information Superiority ... Emerging Insights
 - Information Technology
 - Business
 - Warfare
- Conclusions

Joint Vision 2010



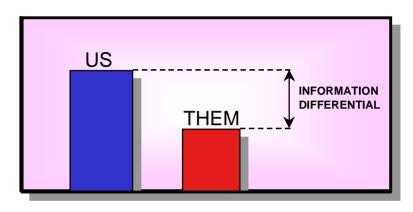
PROTECTION

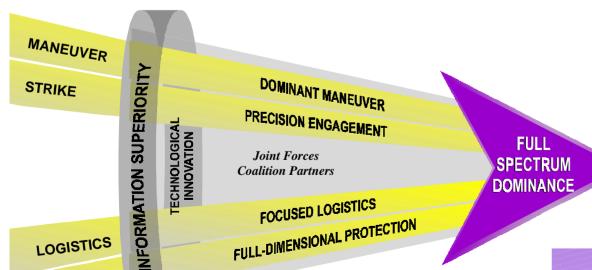
INFORMATION SUPERIORITY

The capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same.

JV 2010

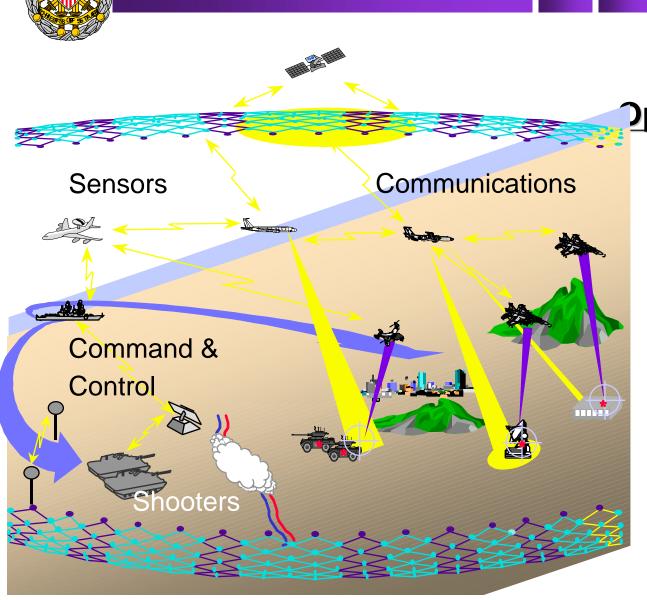
INFORMATION





Information Superiority Enables
 Emerging Operational Concepts

Joint Vision 2010

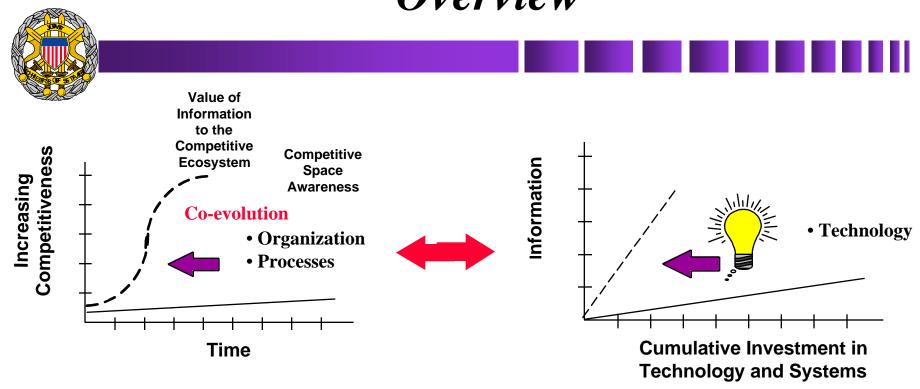


Emerging

Operational Concepts

- Dominant Maneuver
- PrecisionEngagement
- Focused Logistics
- Full-Dimensional Protection
 Enabled by
- Information Superiority

Overview



Business

- Information Grid
- Sensor Grids
 - Generate Competitive Space Awareness
- Transaction Grids
 - Exploit high levels of awareness to increase competitiveness

Warfare

- Information Grid
- Sensor Grids
 - Generate Battlespace Space Awareness
- Engagement Grids
 - Exploit high levels of battlespace awareness to increase Joint combat power

Emerging InsightsThe Changing Dynamics of Competition

Coevolving Ecosystems

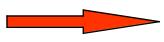
Information Technology

- Platform Centric

- Network Centric Computing

Business

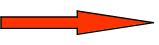
- Company Centric



- Network Centric Operations

Warfare

- Platform Centric



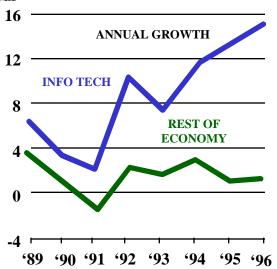
- Network Centric Warfare

Emerging Trends Information Technology

- - Impact of the Information Technology Sector
 - IT Sector is currently 3% of Gross Domestic Product
 - \$400+ Billion in 1996
 - IT Sector contributed to 33% of growth in GDP in 1996 ¹
 - Continuing Price/Performance Trend for Computers
 - 10X performance every 7 years for computer CPUs
 - 2x price decrease for constant performance every 18-24 months
 - Emergence of Network Centric Computing
 - No other technology is moving this fast!
 - 1. Source: "The New Business Cycle," Business Week, (March 31, 1997)

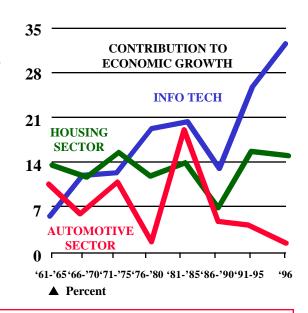
Emerging Trends Information Technology





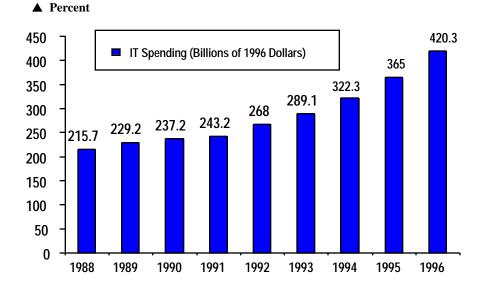
The Information Technology Sector Is Accelerating . . .







- Business and consumer spending on computers, peripherals, and communications equipment
- Net exports of IT
- Consumer spending on telephone service and cable TV
- Investment in telecom services

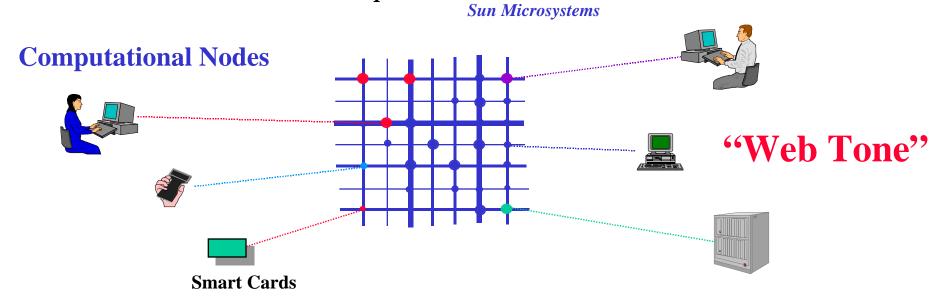


Source: "The New Business Cycle," Business Week, (March 31, 1997)

Information Technology Emergence of Network Centric Computing

What is different?

- Emergence of the "network" as the "computing platform"
 - The Network is the ComputerTM



- Enabled by Information Technology
 - Java ComputingTM, Web-Browsers, Networking HW (Routers), Search Engines
 - TCP/IP, HTTP, HTML, CORBA, ATM

Information Technology Emergence of Network Centric Computing

- Metcalfe's Law defines the potential value of the "network":
 - The *potential value* of the network increases as the *square* of the number of nodes in the network.

Where does the value come from?

- The *value* is derived from the content, quality, and timeliness of **information** moving between nodes in the network.
- % Relevant Information

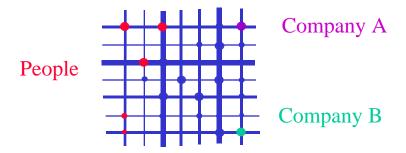
 Trends

 100 %

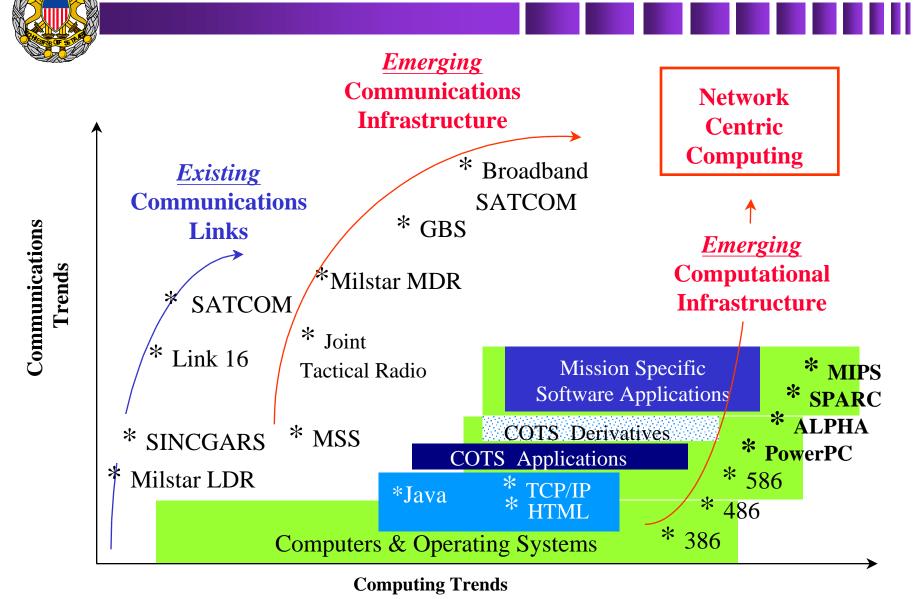
 Time Delay

 % Accuracy

- Enabling of "information interactions" between "nodes" in the network
 - Voice
 - E-Mail
 - Video Teleconference
 - Information Pull or Push
 - Electronic Commerce



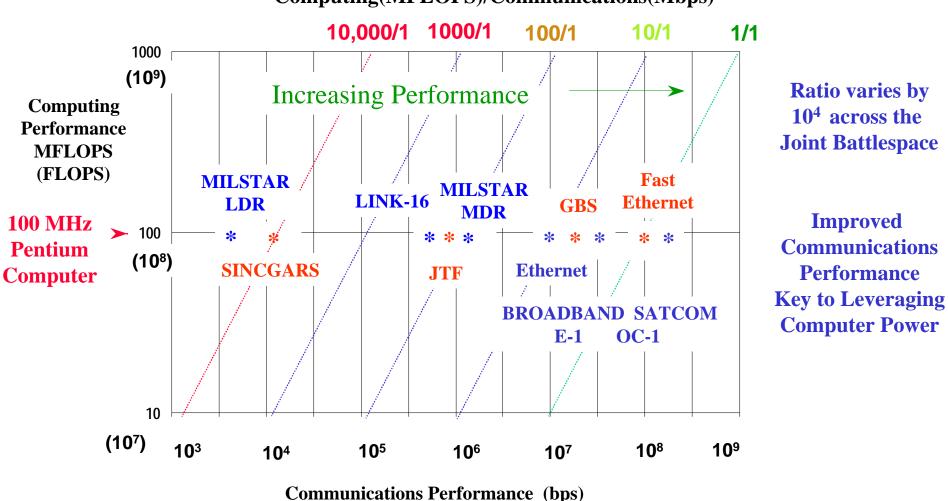
Information Technology Enables Network Centric Computing



Network Centric Computing



Ratios for Network Centric Computing Computing(MFLOPS)/Communications(Mbps)

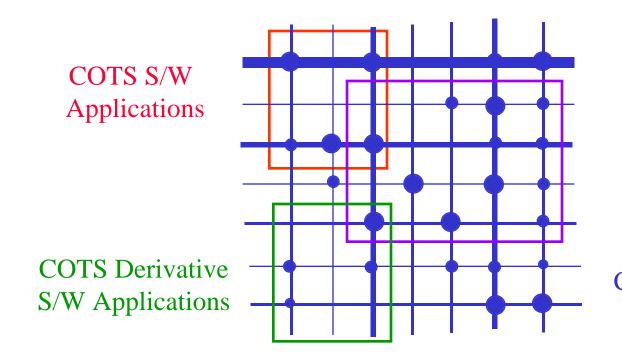


Information Technology Elements of Emerging Strategy

A Strategy for effectively *leveraging* Price/Performance trends for Information Technology

- Enable secure Network Centric Computing
 - Aggressively deploy a high performance Information Grid
- Deploy Applications that exploit power of the Information Grid
 - Where possible, *aggressively* exploit COTS or COTS derivative solutions
 - Where required, *aggressively* develop mission specific S/W applications that can provide a competitive advantage
 - Aggressively explore potential of Java Computing
 - "Virtual" common operating environment
- Improve DoD process for Acquiring Information Technology

Information Technology Elements of Emerging Strategy



Mission Specific S/W Applications

Computational Nodes

Communications Links/Nodes

Information Grid

Appropriate "mix" of military and commercial communications and computational capabilities

Emerging InsightsThe Changing Dynamics of Competition

Coevolving Ecosystems

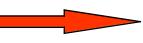
Information Technology

- Platform Centric

- Network Centric Computing

Business

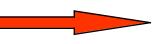
- Company Centric



- Network Centric Operations

Warfare

- Platform Centric



- Network Centric Warfare

Emerging Insights

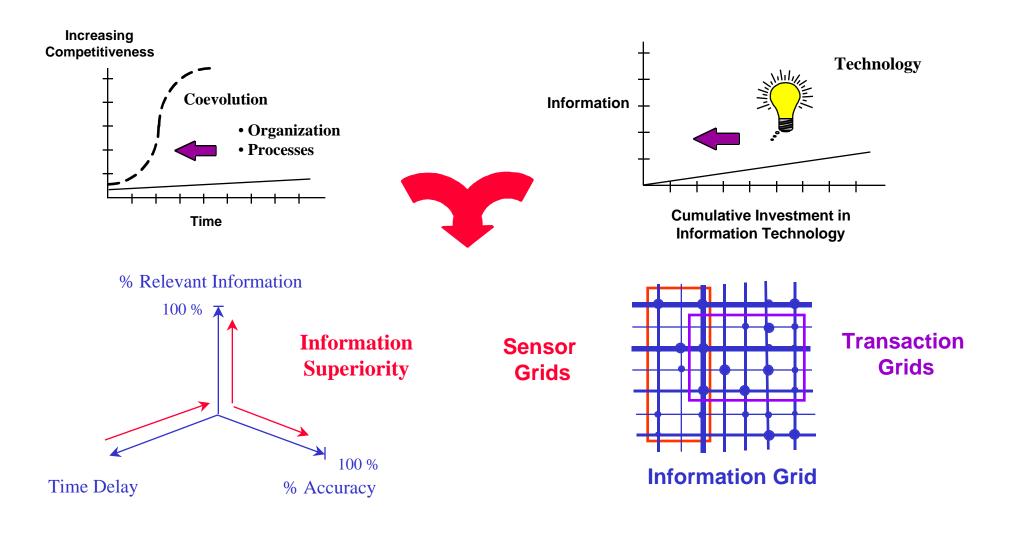


- Emergence of "Information Superiority" in the commercial sector
- Enabled by shift to Network Centric Operations
 - Retail Sector
 - Financial Services
- Co-evolution of organization and process to exploit technology

IS Strategy Emerging Insights ...Business



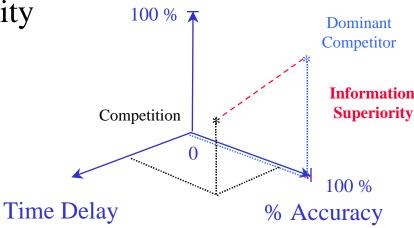
Shift to Network Centric Operations



IS Strategy

Emerging Insights From Business Case Studies

- - Emergence of Information Superiority
 - 100% relevant information
 - 100% accurate
 - Real-time (Near Zero time delay)

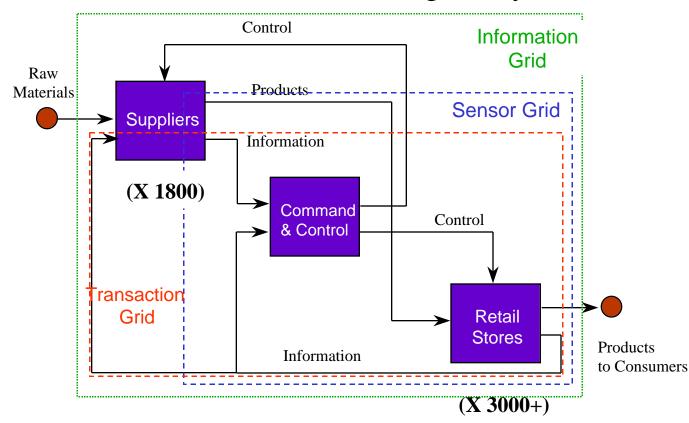


% Relevant Information

- Translating Information Superiority to a Competitive Edge
 - Retailing: Wal-Mart
 - Shift to Network-Centric Retailing
 - Reduced cost of Logistics 50% of Earnings
 - Fixed Income Securities Trading: Deutsche Morgan Grenfell, Inc.
 - Shift to Network-Centric Trading
 - Significantly Increased Trading Volume
 - Monthly: 22% 24% / Forecasted Annual: 800+%

- Competition between Retail Ecosystems
 - Wal-Mart vs. K-Mart
 - Business Model
 - Maximize Value to Customer (Price, Selection, Service)
 - Maximize Profit for Retailer
 - Maximize number/profitability of transactions
 - Develop awareness of what customer is buying
 - Supply stores what the customer is buying
 - Minimize costs of transactions
 - Cost of Advertising
 - Cost of Labor
 - Cost of Plant (Retail Stores, Warehouses)
 - Cost of Products (Price retailer pays to supplier of products)
 - Logistics Costs: Inventory (Retail Store, Warehouse, Intransit)

Wal-Mart's Retailing Ecosystem



1996 Results ¹

Sales: \$104.9 Billion Earnings: \$3.056 Billion

IT Spending²

1996: \$1,027M 1995: \$452M

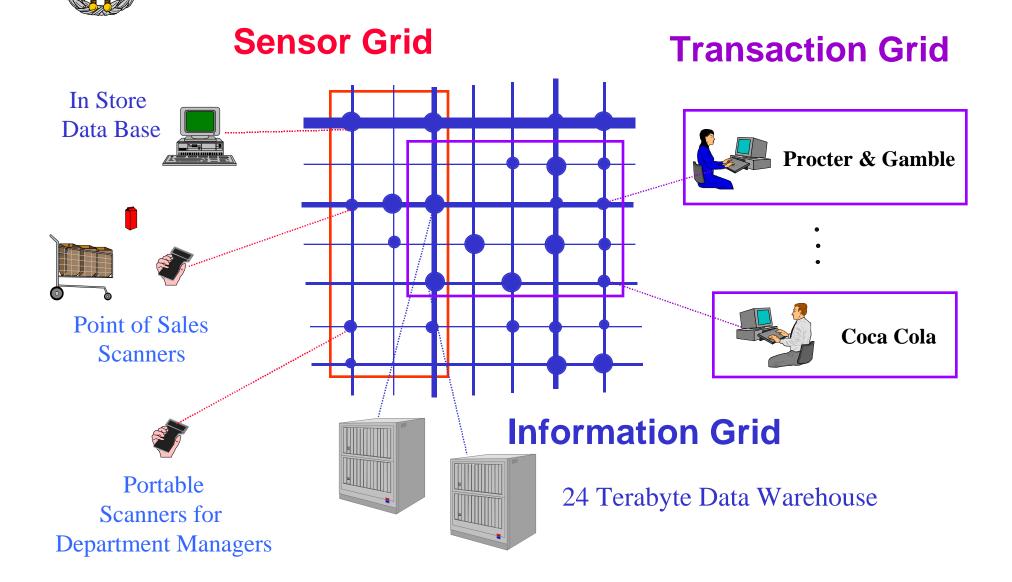
Competitive Edge 3

Cost of Distribution
3% of Sales or less
(vs. 4.5 to 5%
for Competition)

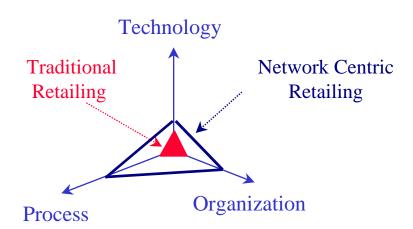
"Competitive Space" Awareness Emerges as key Competitive Advantage in Retail Sector

Source:

- 1. Investors Business Daily, 1997
- 2. International Data Corporation, 1997
- 3. The Death of Competition, 1996

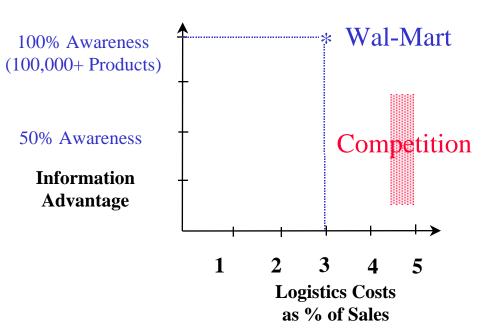


Competitive Advantage Emerges from Co-evolution of Organization, Process, and Technology



Self-Synchronization of Suppliers

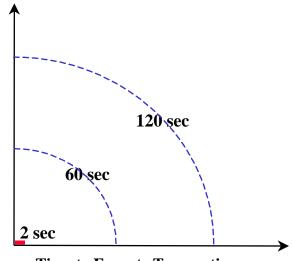
Information Superiority Increases Competitiveness



Quantifiable Information Advantage
Quantifiable Increase in Competitiveness
<u>Highly Correlated</u>

- Competition Based on Time
 - Market: U.S. Government Securities
 - Notes and Bonds
 - Securities Traders:
 - Deutsche Morgan Grenfell, Inc. Goldman Sachs, Merrill Lynch, Cantor Fitzgerald, etc.
 - Asymmetries in Customer Service
 - Business Model
 - Maximize Profit for Trading Firm
 - Increase number and profitability of Securities Transactions
 - Maximize Value to Customer
 - Price: Bid/Ask
 - Service = Transaction Time

Time to Generate Price Awareness (Single Security)

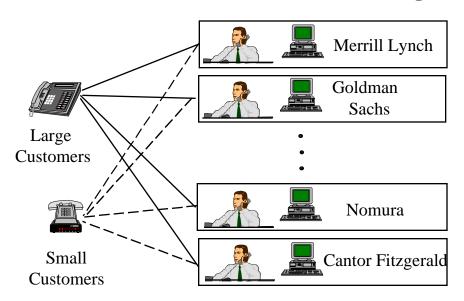


Time to Execute Transaction

AUTOBAHN

- 2 sec
- 95% of the time
- Competition
 - 30 sec to 90 sec
 - 30 sec: 10% of the time

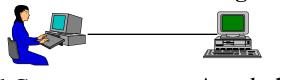
"Trader Centric" Securities Trading



Securities Traded via Voice Transaction

- Step 1: Customer Develops Price Awareness (Single Security)
 - -- 3-4 Phone Calls: Parallel or Serial
- Step 2: Customer Selects Party for Transaction
- Step 3: Trade Executed
- Total Elapsed Time
 - Large Customer (Parallel: 50+ sec / Serial: 160+ sec)
 - Small Customer (Time to Access Trader Drives Timeline)

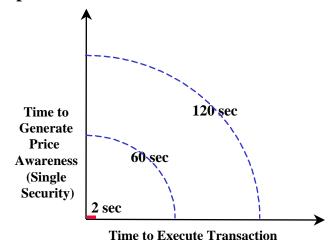
"Network Centric" Securities Trading



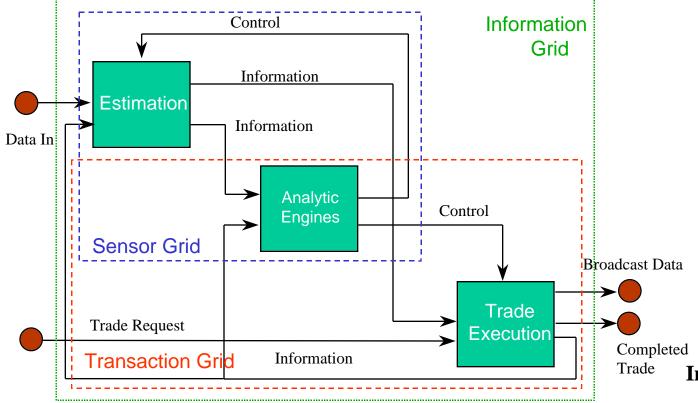
All Customers

Autobahn

- Securities Traded via Electronic Transaction
 - Step 1: Customer Receives Price Broadcast
 - -- Real time broadcast of Bid/Ask Prices
 - -- 100% Price Awareness
 - Step 2: Trade Executed: 2 sec







"Competitive Space" Awareness Emerges as Competitive Advantage in Securities Trading Company:
Deutsche Morgan Grenfell,
Inc.

Service: AUTOBAHN

Competitive Edge 1

Increased Trading Volume

Monthly Increase:

• 22% - 24%

Projected Annual

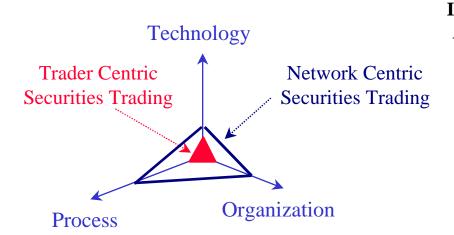
Increase:

• 800%+

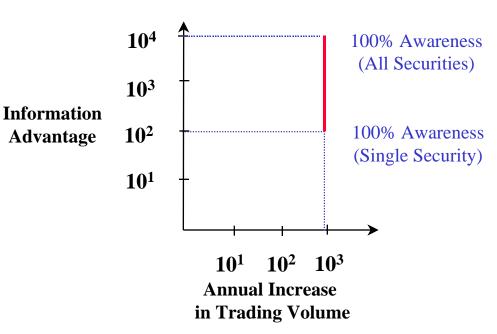
Source:

 Interview w/ Christopher J. Carroll Managing Director, Global Electronic Trading, DMG

Competitive Advantage
Emerges from Co-evolution of
Organization, Process, and
Technology



Information Superiority Increases Competitiveness



Quantifiable Information Advantage Quantifiable Increase in Competitiveness <u>Highly Correlated</u>

Emerging Insights From Business Case Studies



- Emergence of Information Superiority
- Shift to Network Centric Operations
 - Entry fee is a high performance "Information Grid"
- Co-evolution of organization and process is critical enabler
- Implications for Warfare

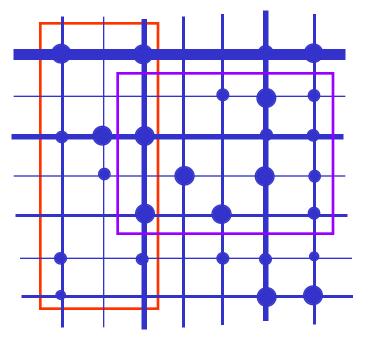
Emerging Insights From Business Case Studies



Shift to Network Centric Operations

Sensor Grids

Generate high levels of competitive space awareness



Transaction Grids

Exploit high levels of competitive space awareness to provide a competitive edge

Information Grid

Enables Network Centric Operational Architectures

Emerging InsightsThe Changing Dynamics of Competition

Coevolving Ecosystems

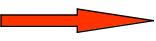
Information Technology

- Platform Centric

- Network Centric Computing

Business

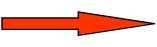
- Company Centric



- Network Centric Operations

Warfare

- Platform Centric



- Network Centric Warfare

Network Centric Warfare

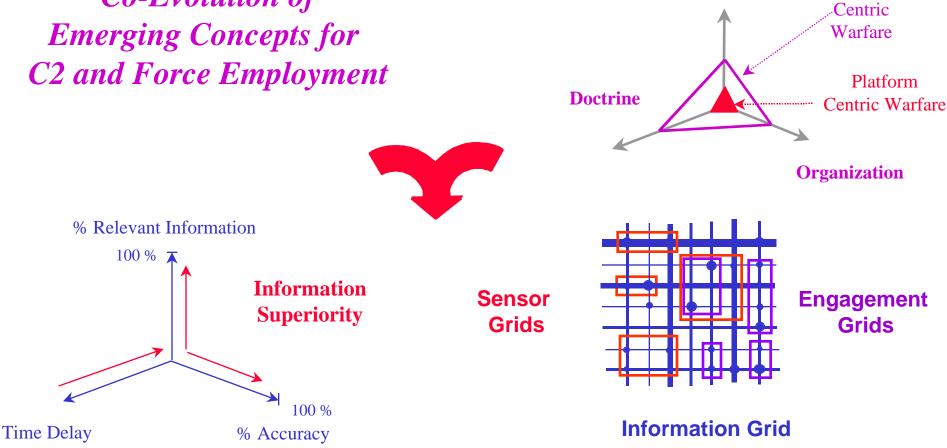


Shift to Network Centric Operations

Technology

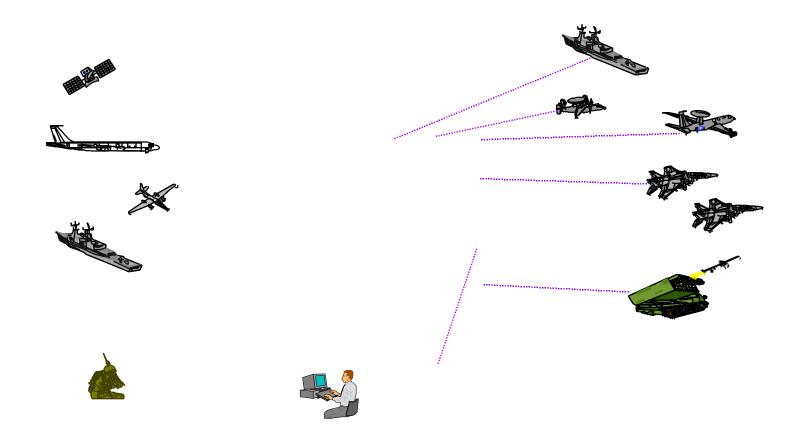
Network

Co-Evolution of **Emerging Concepts for** C2 and Force Employment



Network Centric Warfare





Network Centric Warfare Emerging Concepts



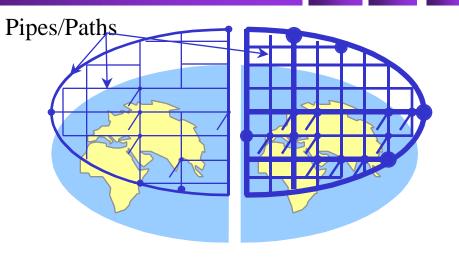
- Information Grid
 - Increases the Velocity of Information
- Sensor Grids
 - Generate Battlespace Awareness synchronized with military operations
- Engagement Grids
 - Exploit Battlespace Awareness to generate increased Combat Power

Hypothesis: Combat Power increases as $F(N^2)$

IS Strategy Information Grid



Today

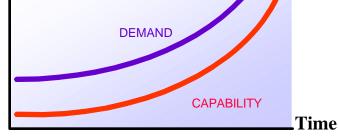


Tomorrow

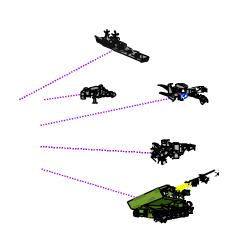
Dial Tone Web Tone Data Tone

Increased Velocity of Information

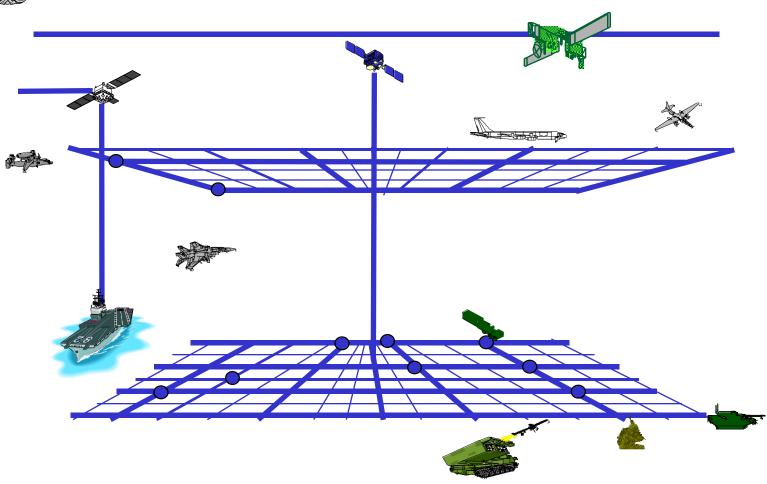




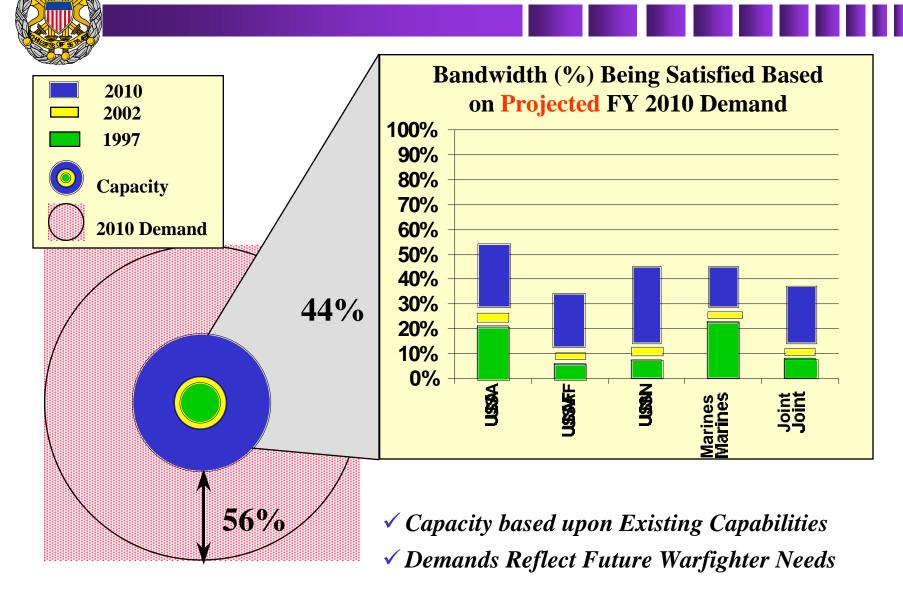








Information Grid: Notional JTF "Pipe" Capacity VS. Demand

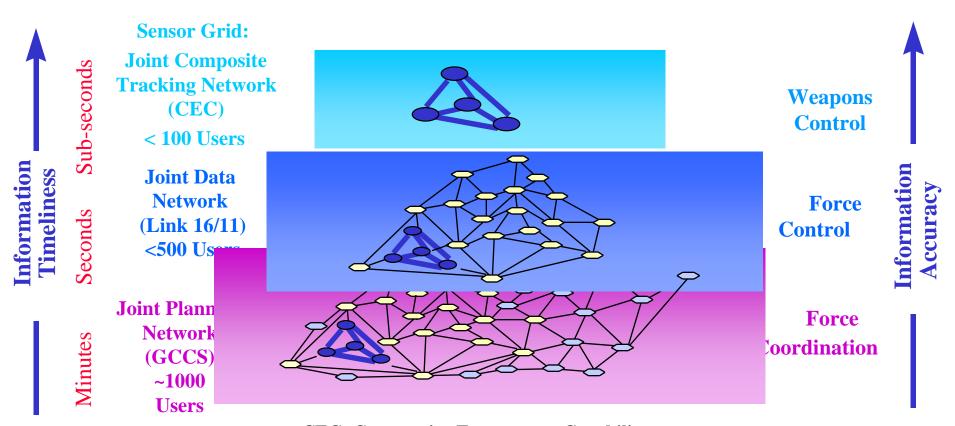


SOURCE: MITRE

Information Grid Increased Velocity of Information

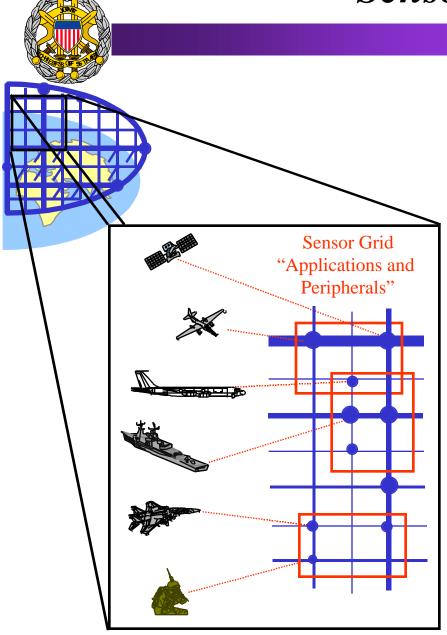
Sensor / Awareness

Shooter / Transaction



CEC: Cooperative Engagement Capability GCCS: Global Command and Control System

IS Strategy Sensor Grids



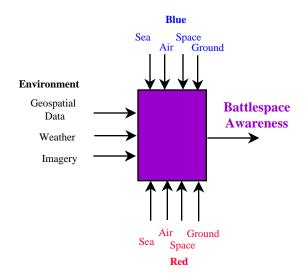
- Battlespace Awareness emerges as a competitive advantage in Warfare
 - Awareness of friendly forces
 - Awareness of enemy forces
 - Awareness of the environment
- Sensor Grids
 - Rapidly generate Battlespace Awareness
 - Synchronized with operations
- Sensor Grid Components
 - Space, Air, Sea, Ground and Cyberspace Based Sensors
- Task Organized
 - Standing
 - On Order

IS Strategy Increased Battlespace Awareness



- Improved Data Fusion
- Parallel Dissemination
- Dynamically Taskable
- Synchronized to Military Operations
- Universal Sensor Recruitment

Projected Situation



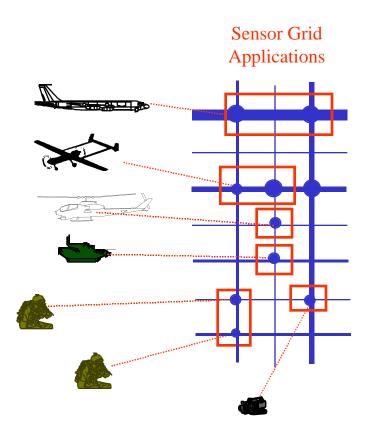




Network Centric Warfare

Hunter Warrior Advanced Warfighting Experiment

Prototype Sensor Grid Explored in Hunter Warrior Advanced Warfighting Experiment (March 1997)



Experimental Sensor Grid

- Joint STARS
- EXDRONE (Unmanned Aerial Vehicle)
- Cobra w/ FLIR Sensor +

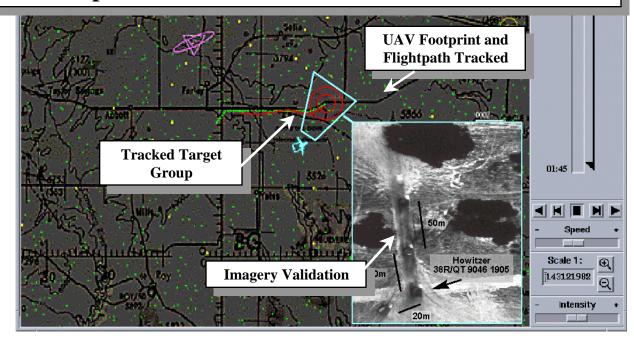
Advanced Tactical Information Management System

- LAV Recce Vehicle
- Multi-Man Reconnaissance Teams w/ Man Portable Sensors
- Micro Sensors

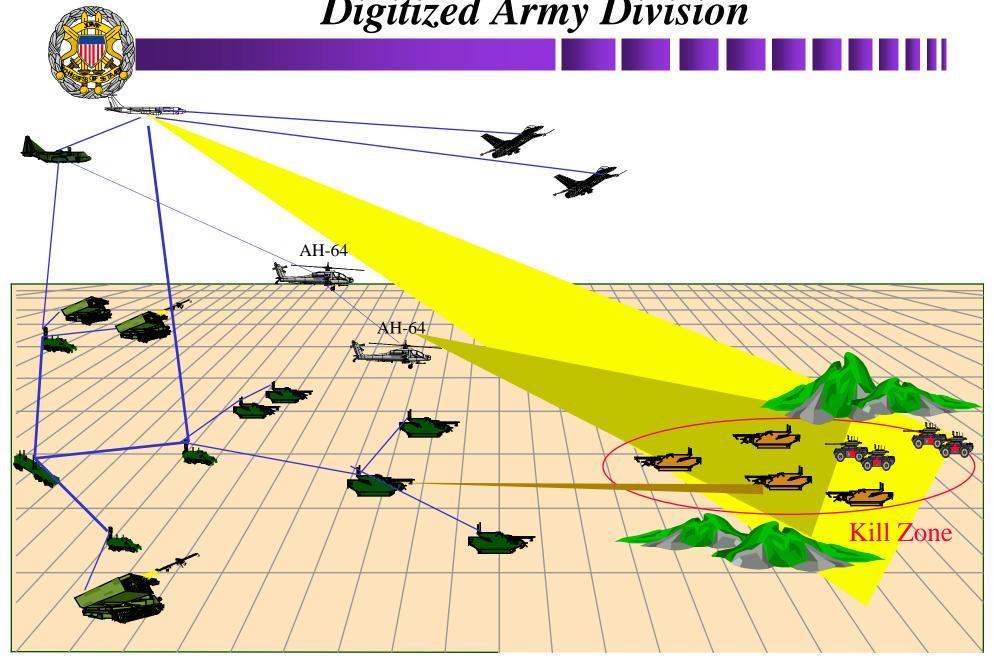
Network Centric Warfare

Hunter Warrior Advanced Warfighting Experiment

- Sensor Grid increased battlespace awareness via:
 - Sensor Tasking
 - -- JSTARS MTI "Dots" used to cue Hunter UAV
 - Multi-Sensor Data Fusion
 - -- Inputs from multiple sensors fused to increase battlespace awareness



Network Centric Warfare Digitized Army Division

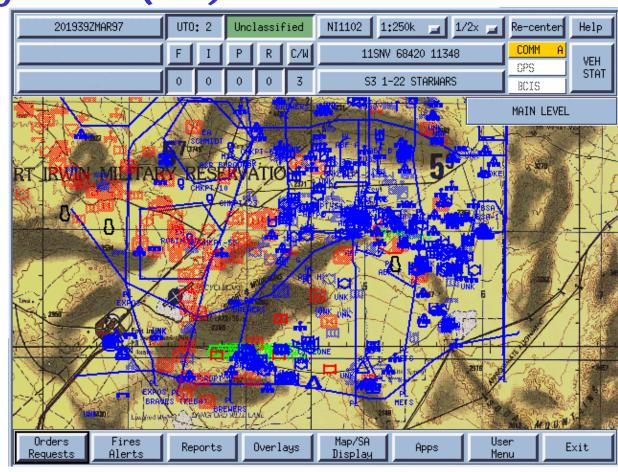


Network Centric Warfare Digitized Army Division

Sample of Situational Awareness Picture at the National Training Center (NTC) - Task Force XXI AWE

Increased Battlespace Awareness

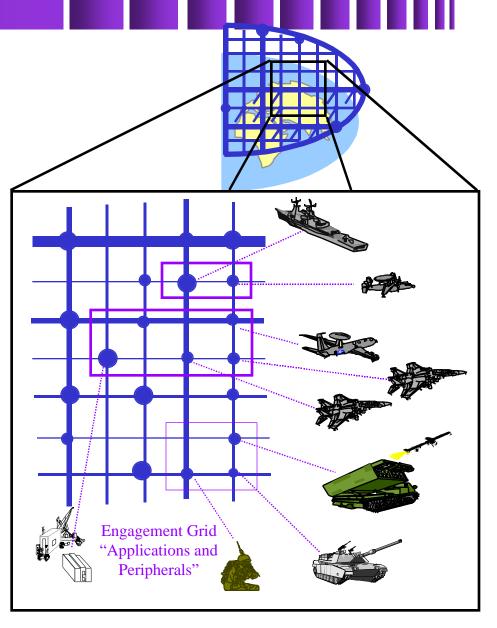
- Where Am I?
- Where Are My Buddies?
- Where Is the Enemy?



IS Strategy Engagement Grids



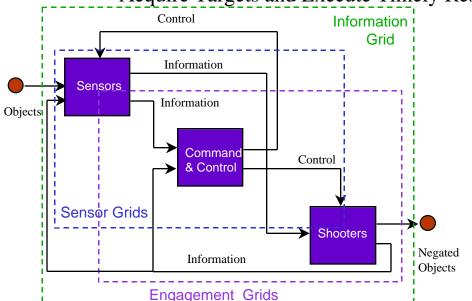
- Engagement Grids enable Commanders to Increase Joint Combat Power by
 - Exploiting Battlespace Awareness
 - Massing effects of air, ground, and sea based "shooters"
- Grids of Air, Sea, Ground and Cyberspace Based "Shooters"
 - Standing Grids
 - On Order Grids
- Elements of "Networked" Engagement Grids
 - Command & Control
 - Battle Management
 - Kinetic & Cyberspace Shooters
 - Supporting Forces



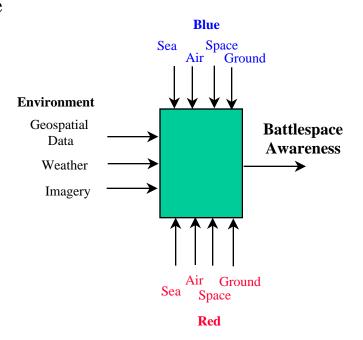
IS Strategy Engagement Grids



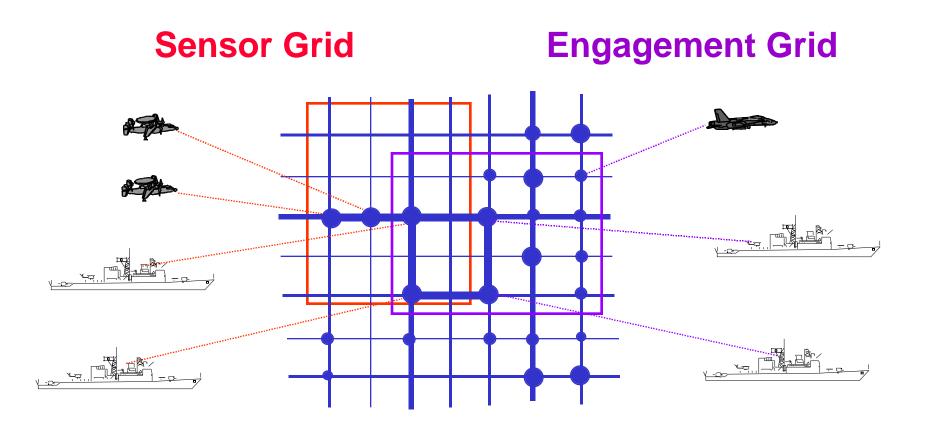
- Engagement Grids Provide Forces with New Operational Capabilities
 - Predictive Planning and Preemption
 - -- Rehearse, Evaluate, and Adapt Plans Rapidly
 - Integrated Force Management
 - -- Synchronize Distributed Force Operations
 - Execution of Time Critical Missions
 - -- Acquire Targets and Execute Timely Response



- Dynamic Planning and Decision Making
- Virtual Staffs
- Integrated C2 Applications



Network Centric Warfare Cooperative Engagement Capability (CEC)



Information Grid

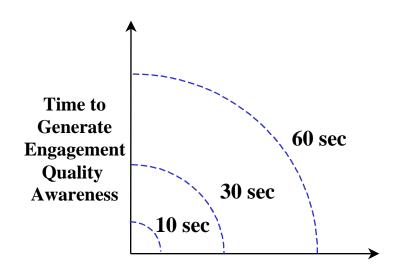
Network Centric Warfare Cooperative Engagement Capability

Sensor Grid

- Fuses multi-sensor data
- Quantum improvement in track accuracy, continuity, and target identification
- Extends detection ranges
- Generates engagement quality Battlespace
 Awareness at high speed

Engagement Grid

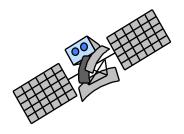
- Significant increases in depth of fire
- Increased reaction timeliness
- Higher Pk
- Maximizes performance against stressing targets



Time to Execute Engagement

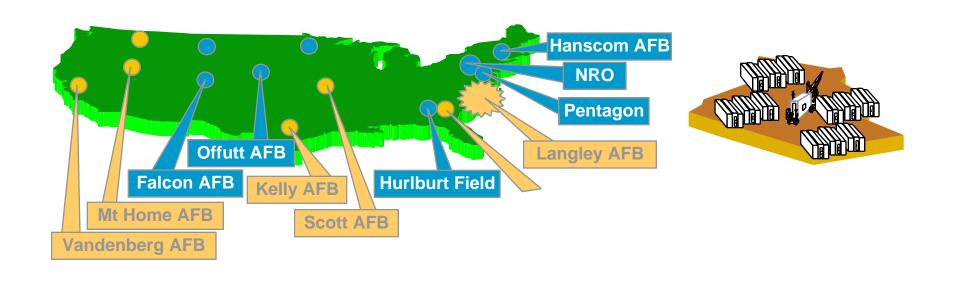
Yesterday's Concept Command and Control for Air Operations

Yesterday's Joint Air Operations Center (JAOC)



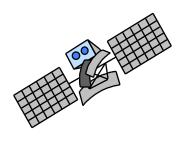
Required:

- 1500-2000 people
- 10-15 days25 C-17 loads



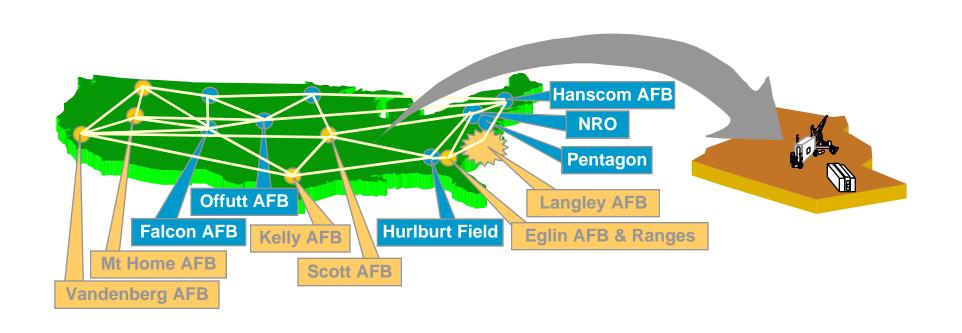
Network Centric Warfare Command and Control for Air Operations



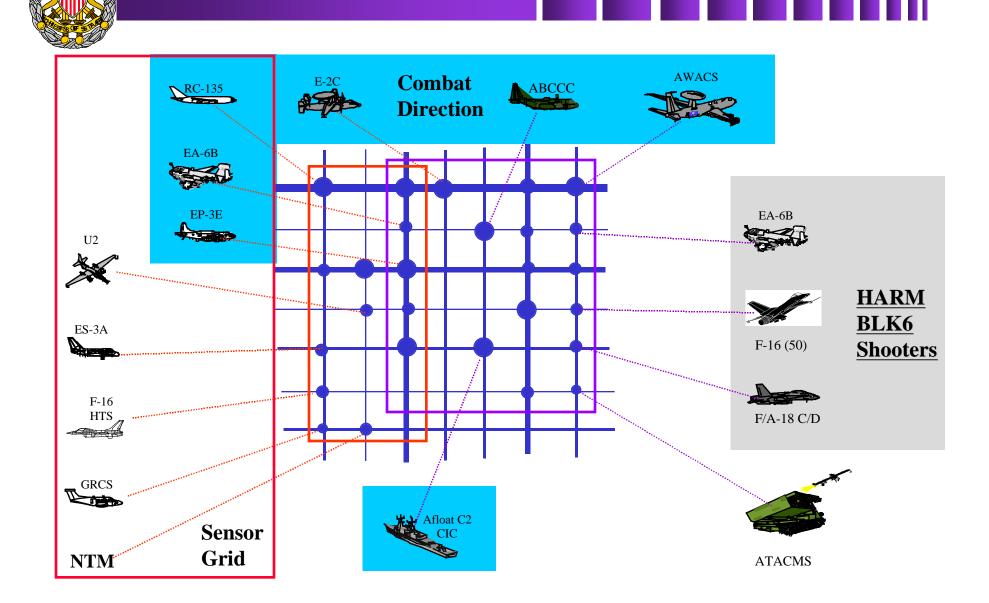


Forward JAOC:

- ~ 100 People
- 24 48 Hours
- 1 C-17 Load

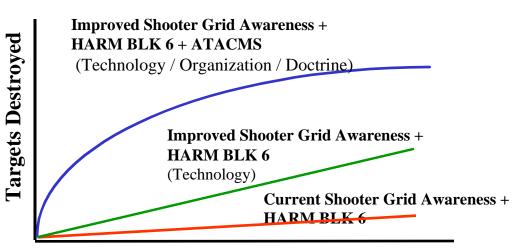


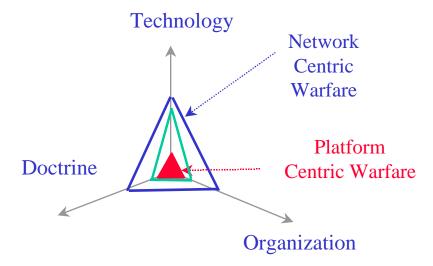
Network Centric Warfare Precision Engagement - Reactive SEAD



Network Centric Warfare Increases Joint Combat Power



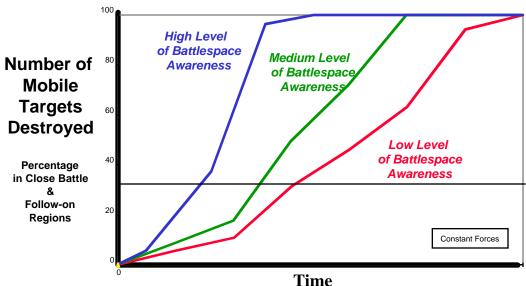




Time

Operational Impact

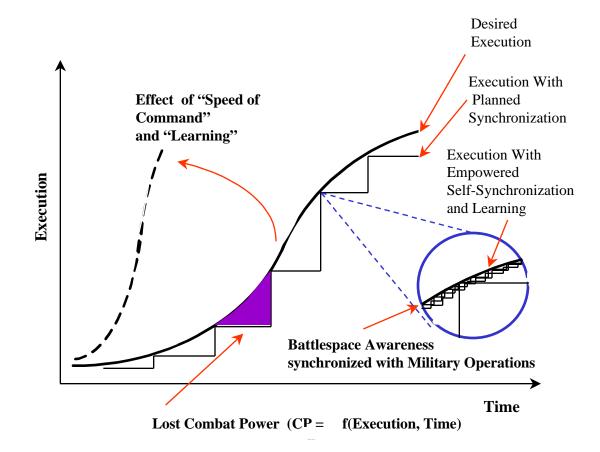
- Dramatic Early Results
- Greatest Rates of Change in Initial Phase of a Campaign
- Inflicts Maximum Losses Against the Enemy
- Shortens Timelines
- Locks out Enemy Options



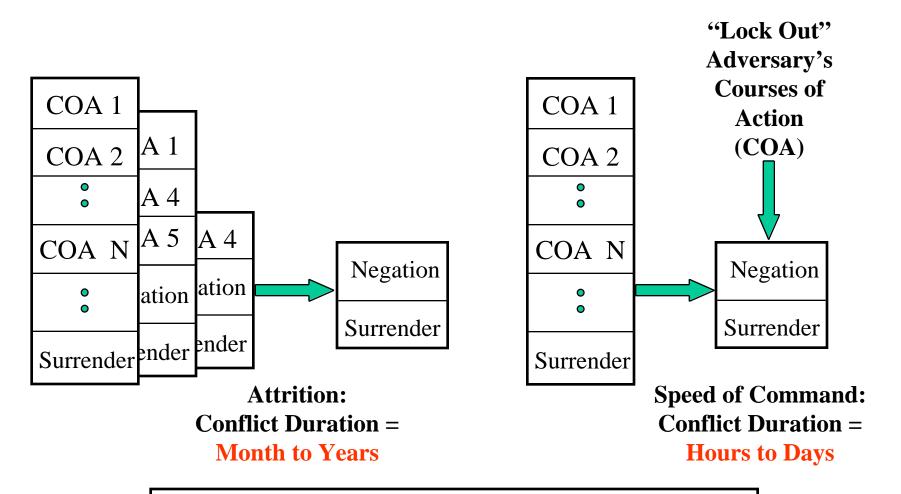
Self-Synchronization and Speed of Command



- Translating Information Superiority into a Competitive Advantage
 - Alter initial conditions
 - Develop high rates of change
 - Lock in our success
 - Lock out enemy solution
- **By**
 - Applying effort on a high speed continium
 - Empowering all echelons
 - Leveraging self-synchronization
 - Treating warfare as a complex adaptive process



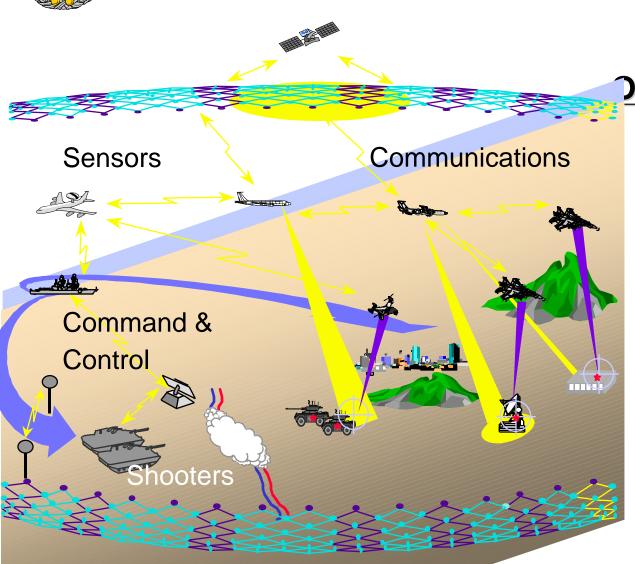
The Changing Dynamics of Competition: Attrition vs. Speed of Command



Emergence of Competition Based on Time

Joint Vision 2010





Emerging

Operational Concepts

- Dominant Maneuver
- PrecisionEngagement
- Focused Logistics
- Full-Dimensional Protection

Enabled by

Information Superiority

Joint Vision 2010

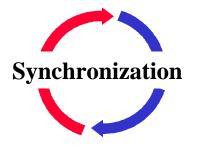


Dominant Maneuver

- Achieve Decisive Speed and Tempo
- Maintain Positional Advantage

Precision Engagement

- Locate Enemy
- Generate Desired Effect
- Assess Success
- Reengage



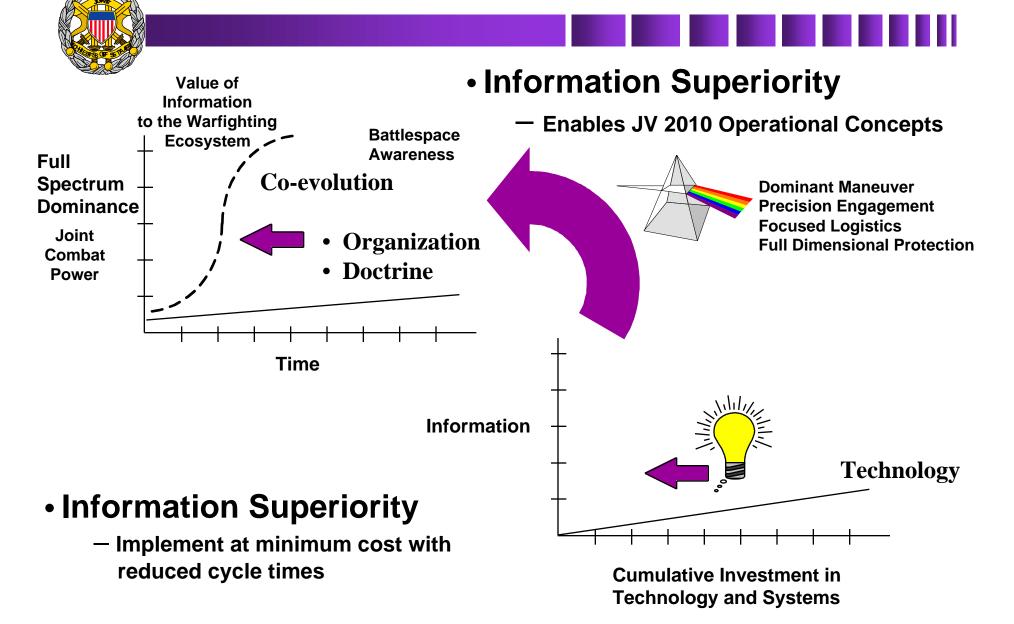
Focused Logistics

- Embedded Blue Force Sensing
- Maintain Intransit Visibility

Full-Dimensional Protection

- Maintain Multi-dimensional Awareness
- Perform Accurate Combat ID
- Enable Dispersion of Forces

Emerging Insights Warfare



Changing the Way We Change Enabling Network Centric Warfare

- Compelling need for co-evolution
 - Organization and doctrine are lagging and de-coupled from technology progress
- Elements of a potential solution
 - Joint Warfighting Experimentation
 - Information Superiority Experiments
 - Operational Concept Experiments
 - Links to organization, doctrine, acquisition

Why Experimentation?



Exercises:

- Employ existing organization, doctrine, and technology
- Success oriented training events

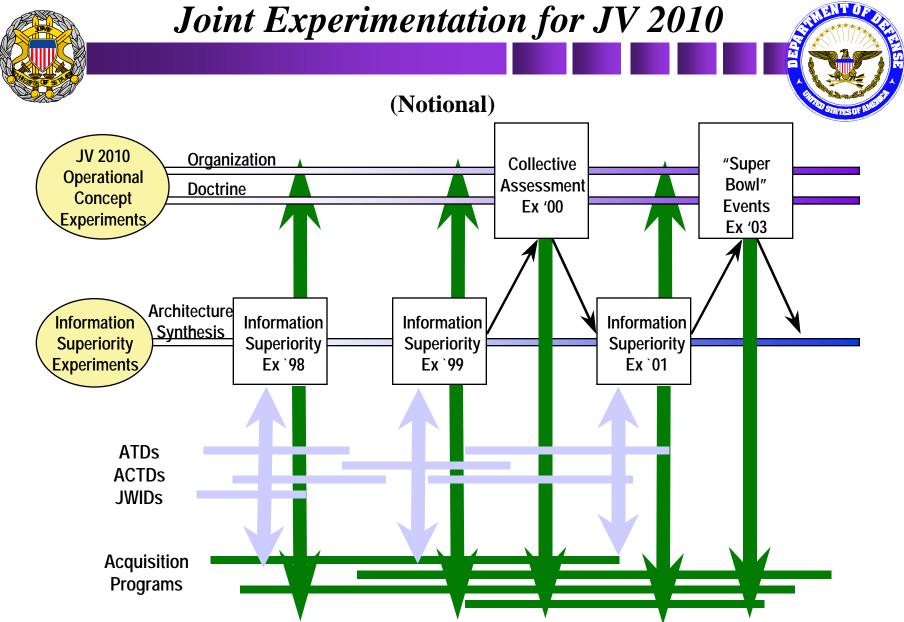
• Demonstrations:

- Overlay new technology on existing organization and doctrine
- Success oriented

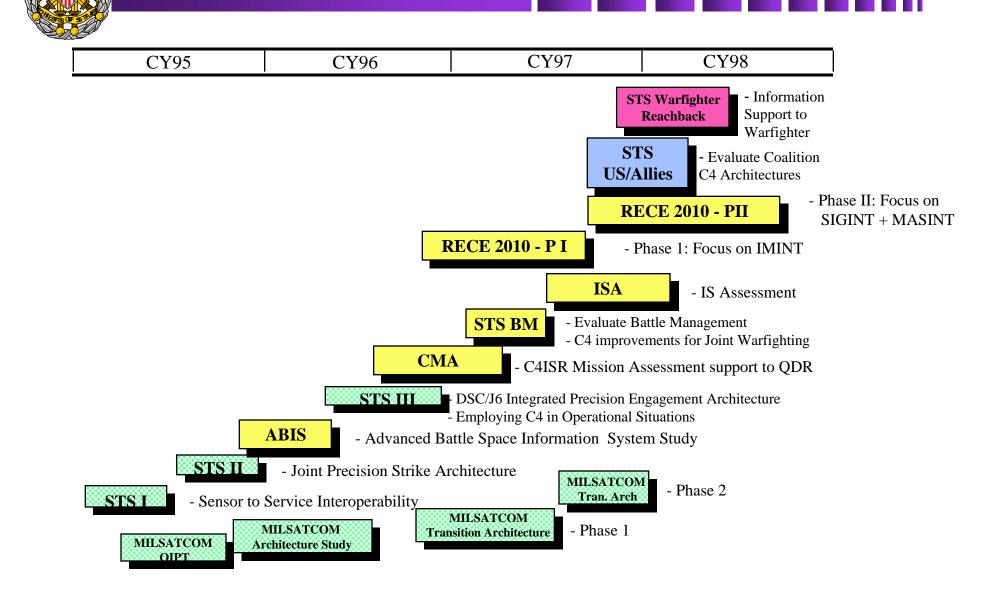
• Experiments:

- Warfighting Focus
- Catalyst for organization, doctrine, and technology to co-evolve
- Employ scientific method
- Allow for failure of warfighting hypothesis

Emerging Strategy for Joint Experimentation for JV 2010



Information Superiority Assessment: Studies



Information Superiority Capability Evolution





- Extensive Info Assur.
- Nuclear Defense

4

Joint Vision 2010 Goal Counter Adv. Threats

- DBK & Adv. C2I Functionality
- Pervasive, Hardened Comm's
- Adv. Info Warfare Defenses

Rapid Engagement & Defend vs. WMDs

- Light, Integrated C4ISR
- Defense in Depth
- Warfighting in WMD
 - Environment

Support Prepositioned Halt with Minimal Losses

- Precision Engagement ...
 Initially at Limited Depth
- JSEAD Solution
- Terminal BMD C4ISR

Ltd. Info Defense

Counter Superpower (Nuclear & Conventional)

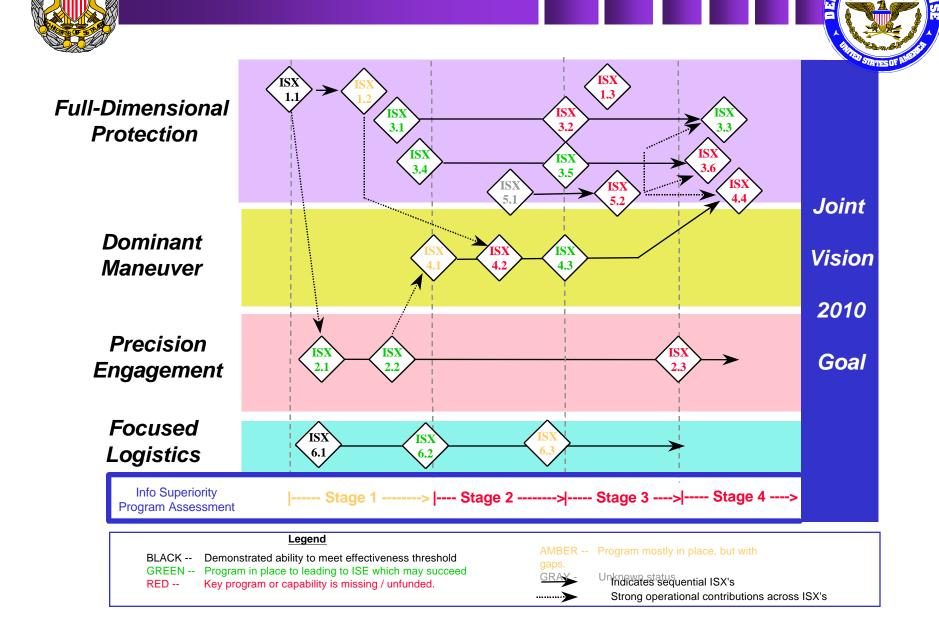
C4ISR Likely to Support Eventual Victory in 2 MRCs with Substantial U.S. Losses

> C4ISR Likely to Support Eventual Victory in 1 MRC with Substantial U.S. Losses

Emerging Information Superiority Threads

- Precision Engagement:
 - 1) Joint Suppression of Enemy Air Defenses
 - 2) Beyond Line of Sight Force Employment
 - 3) Counter sea strike / land strike
- Full-Dimensional Protection
 - 4) Theater Missile Defense
- Dominant Maneuver
 - 5) Light forces

Information Superiority Assessment: Emerging Road Map for Experimentation



ISX 1.1: C4ISR Support to Joint Suppression of Enemy Air Defense

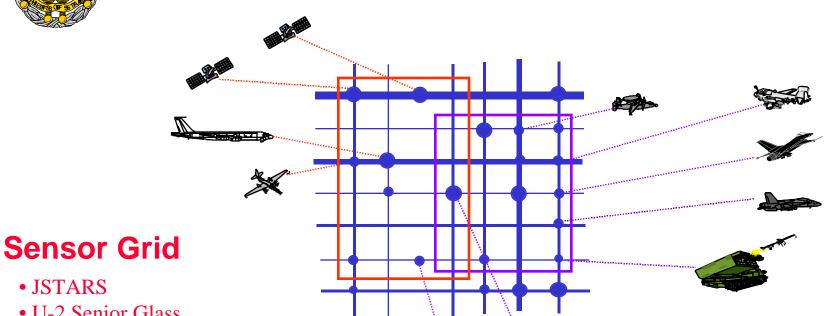
Objective

Generate a Level of Battlespace Awareness which enables Precision
 Engagement of Mobile Strategic SAMs (Surface to Air Missiles)

• Experimental Operational Capabilities

- Prove feasibility of cued hand-off of precision ELINT geolocation data to JSTARS SAR/MTI operator
- Demonstrate capability to monitor SAM during dwell and alert JSEAD battle manager of SAM movement or destruction
- Demonstrate capability to track SAM during movement in representative traffic clutter

ISX 1.1: C4ISR Support to Joint Suppression of Enemy Air Defense



• JSTARS

- U-2 Senior Glass
- Distributed Common Ground System
- Precision SIGINT Targeting System ACTD
- NTM

Information Grid

- U-2 Common Data Link
- COMSAT T-2 (For Milstar MDR)
- DISN + Milstar EHF/UHF + Link 16 + MSE + SINCGARS

- E-2C
- JSEAD Battle Management Initiative
- Combined Tactical Operations Center
- Advanced Field Artillery Tactical Data System

Engagement Grid

- HARM + JSOW Shooters
- ATACMS

IS Strategic Vision Emerging Insights

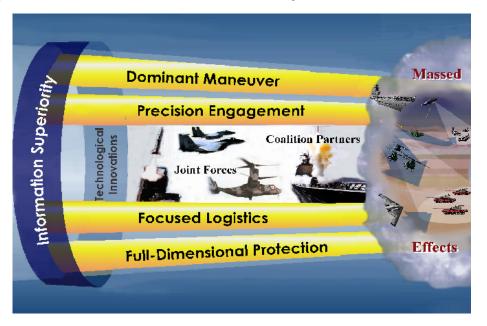


- Information Superiority
 - Exists in Business and Warfare
 - Useful parallels
- Shift to network centric operations
 - Business:
 - Provides competitors with the capabilities to generate and exploit *information superiority* to increase competitiveness
 - Warfare:
 - Providers warfighters with the capabilities to generate and exploit *information superiority* to increase combat power

IS Strategy



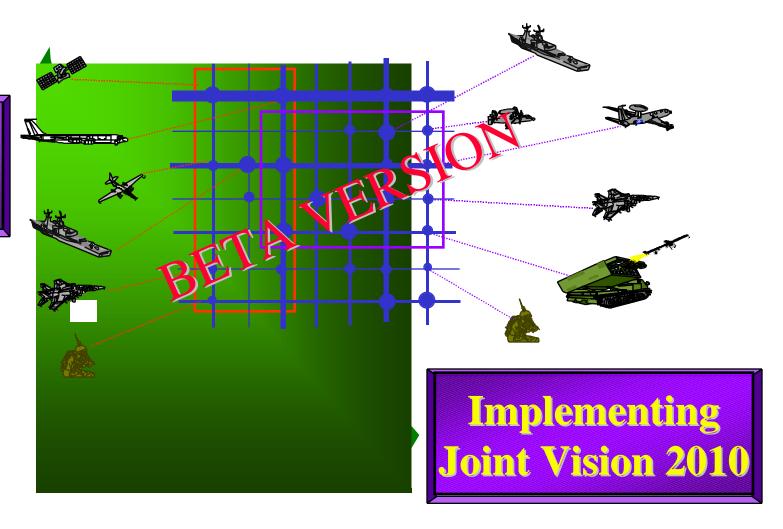
- Strategic Vision
- Information Superiority Experiments
 - Co-evolution of Organization and Doctrine
 - Integrated Decisions: Organization, Doctrine, Systems
- Balanced Investment Strategy



Information Superiority



A Pathway
to
the Future



Information on the Web



- For additional information on Information Superiority and Network Centric Warfare:
 - J6 Web Site
 - www.dtic.mil/jcs/j6
 - Air and Space C2 Agency Website
 - http://wwwmil.acc.af.mil/asc2a
 - N6 Web Site
 - http://copernicus.hq.navy.mil
 - U.S. Naval Institute Web Site
 - www.usni.org
 - January Issue of Proceedings
 - Network Centric Warfare: Its Origin and Future



THE EMERGING JOINT STRATEGY FOR

INFORMATION SUPERIORITY





THE EMERGING JOINT STRATEGY FOR

INFORMATION SUPERIORITY



Network Centric Warfare

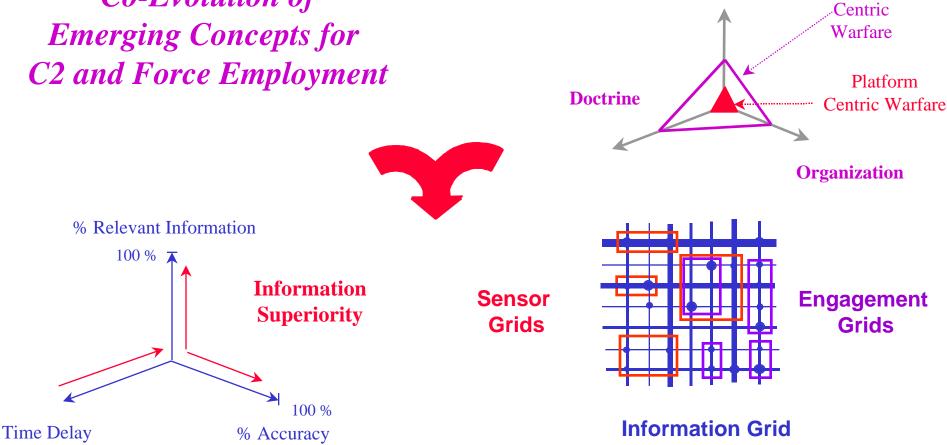


Shift to Network Centric Operations

Technology

Network

Co-Evolution of **Emerging Concepts for** C2 and Force Employment



Dominant Maneuver

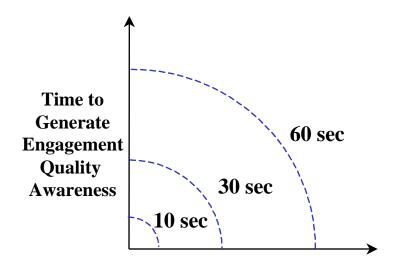


Sensor Grid

- Generates a shared common operational picture of the battlespace
 - Enemy, Friendly, Environment

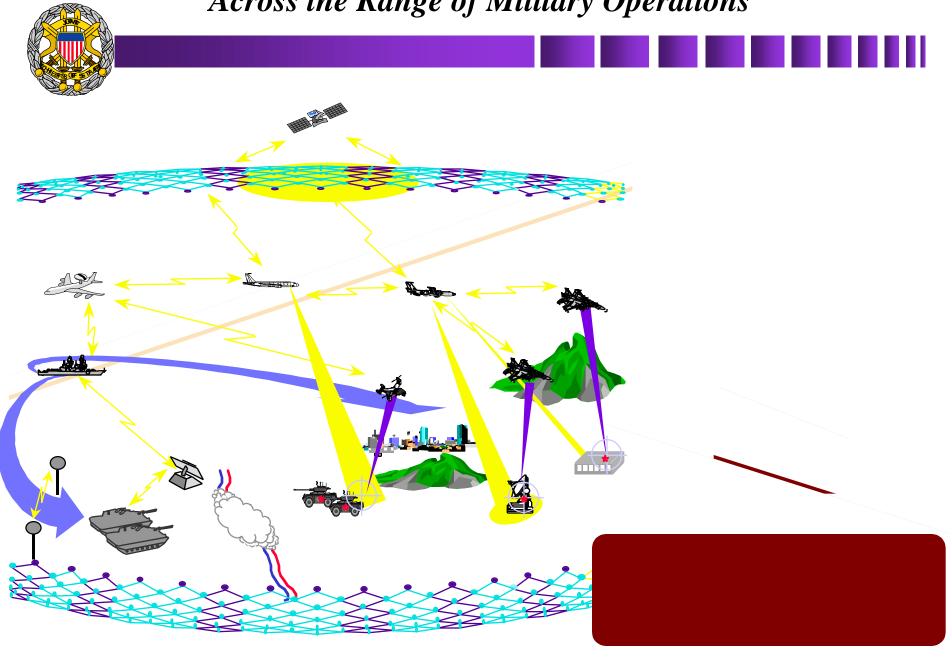
Engagement Grid

- Enables Joint force to:
 - Quickly establish positional advantage
 - Achieve decisive speed and tempo
 - Mass effects
 - Maintain dispersion



Time to Mass Effects

Dominant Maneuver Across the Range of Military Operations



Full-Dimensional Protection



Information Grid

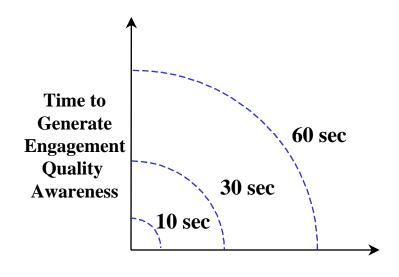
Protects information systems and processes

Sensor Grid

- Multi-dimensional awareness
- Combat identification

Engagement Grid

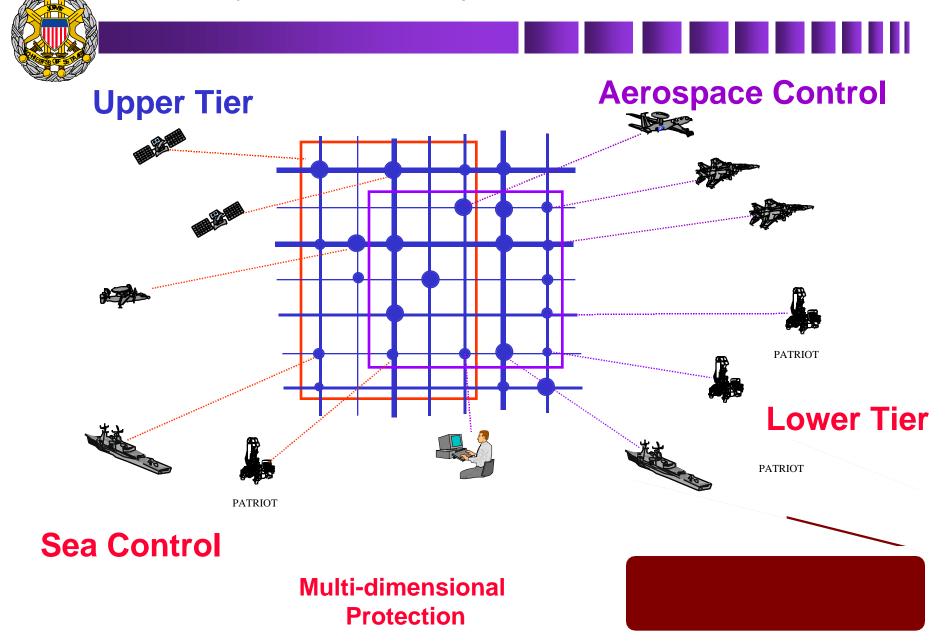
- Attacks enemy information & processes
- Enables space control to maintain freedom of action
- Enables dispersion of forces
- Facilitates deception and camouflage



Time to Engage Target

Full-Dimensional Protection

Multi-Layered Protection for Forces and Facilities



Focused Logistics



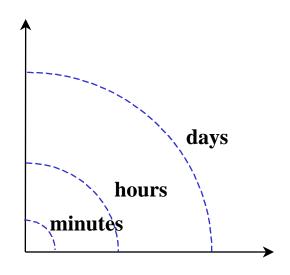
Sensor Grid

- Embedded sensors track consumable use in real-time
- Embedded sensors provide intransit visibility information

Engagement Grid

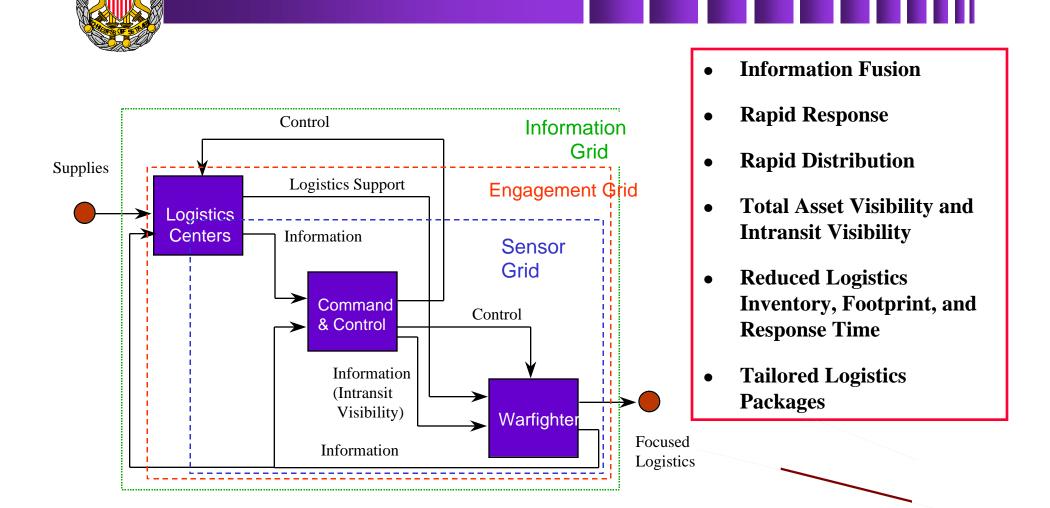
- Enables self-synchronization of logistics support
- Logistics teams "push" logistics support
- Optimizes uses of airlift and sealift

Time to Generate High Quality Awareness



Time to Provide Logistics Support

Focused Logistics Precise Application of Logistics



Battlespace Awareness Emerges as key enabler for Focused Logistics

Precision Engagement

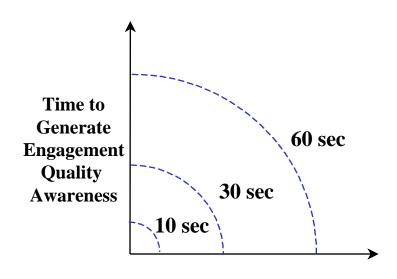


Sensor Grid

- Generates engagement quality
 Battlespace Awareness with reduced timelines
- Increases accuracy and timeliness of battle damage assessment

Engagement Grid

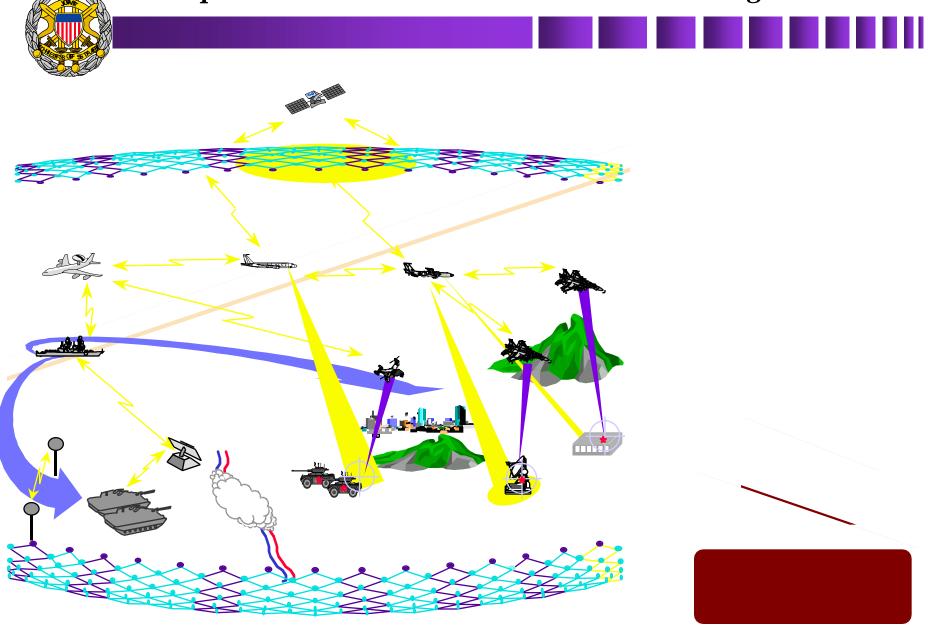
- Enables rapid targeting
- Rapidly generates effects
- Enables higher Pk engagements
- Minimizes collateral damage
- Rapidly retarget



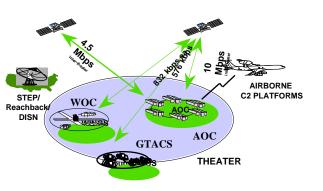
Time to Engage Target

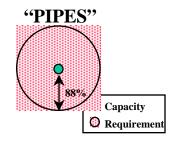
Precision Engagement

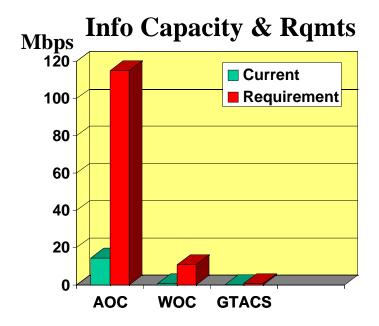
Responsive & Accurate From Extended Ranges

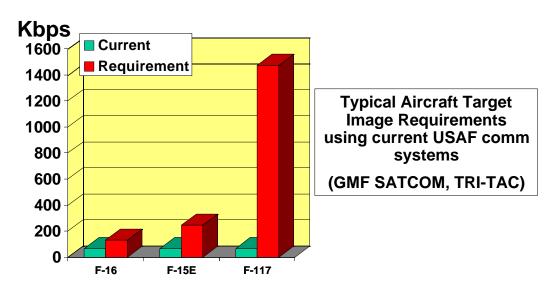


USAF: TODAY'S JTF THEATER LAYDOWN









Squadron Mission Planning

Kilobits/second required to support one squadron targeting 4 Hrs after ATO receipt, including imagery (excluding BDA)

SOURCE: ACC AEF Comm guide (Squadron Mission Planning slide only)

AIR FORCE: SATCOM



✓Effect of Bandwidth Limitations:

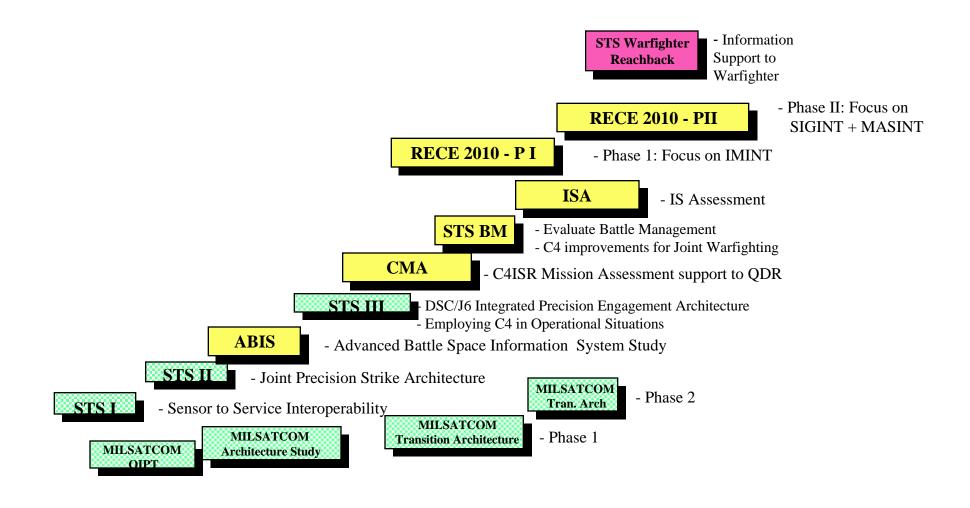
- 100% TBM defense; 100% Intel threat warning (if JWICS channel provided)
- <20% of target imagery (F-16), other weapons systems lower
- 10% of "reachback" planning and support

✓ Impact on the Warfighter: Cannot Achieve JV2010

- ATO receipt unacceptable; alternate routing necessary
- COP, air picture updates marginal
- BDA, target, weather imagery not available in sufficient clarity quality
 - ✓ Flexible targeting, dynamic mission planning impossible
 - ✓ Target restrikes may be planned on incomplete information
- Logistics hampered Mission Impacting Supply and Maintenance actions delayed; slow supply transactions (up to 30 min per action)

Information Superiority Assessment: Studies

- 1				
	CY95	CY96	CY97	CY98
	C1/J	C170	0177	0170



Emerging Strategy for Joint Experimentation for JV 2010

